California Environmental Protection Agency

Air Resources Board

THE CARL MOYER PROGRAM STATUS REPORT

The Carl Moyer Memorial Air Quality Standards Attainment Program; Incentives for Lower Emission Heavy Duty Engines

December 29, 1999

In memory of Dr. Carl Moyer

(1937 – 1997)

This program is named in honor of the late Dr. Carl Moyer, whose extraordinary dedication, hard work, vision and leadership made this program possible. He created and masterminded this program, in a noble effort to unite business and government in the name of public interest to improve California's air quality.

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EXECUTIVE SUMMARY

The purpose of the Carl Moyer Program is to reduce emissions and help California meets its air quality obligations under the State Implementation Plan (SIP). The Carl Moyer Program provides grants for the extra capital cost of vehicles and equipment that are cleaner than required. In essence, the program buys critical near-term emission benefits that California needs to meet impending federal air quality deadlines.

The Carl Moyer Program is intended primarily to reduce emissions from vehicles and equipment that have traditionally been powered by heavy-duty diesel engines. Diesel engines are numerous, remain in-use a long time, and are significant sources of air pollution. There are more than 1.2 million diesel engines in-use statewide. In trucks and buses, trains, boats, agriculture and construction equipment – diesel engines move goods and people, build our cities and towns, and help grow our crops.

They also pollute the air. Diesel engines emit significant quantities of pollutants that form smog, as well as compounds that have been shown to cause cancer. A recent study concluded that diesel particulate matter (PM) is responsible for over 70 percent of the cancer risk from identified toxic air contaminants in the South Coast air basin. In addition, diesel trucks were recently found to have significant “off-cycle” emissions that were not accounted for in the emissions inventory. Those excess emissions more than double estimated emissions of oxides of nitrogen (NOx), which is a smog-forming precursor. Those emissions will eventually be reduced under a multi-million dollar settlement with engine manufacturers, but they make near-term emission reductions even more critical.

The Carl Moyer Program is a vital part of the near term solution. The fiscal year 1998/99 appropriation for the program totaled $25 million. That funding has all been allocated to local air pollution control and air quality management districts. The local air districts have already obligated most of that funding to projects. Governor Davis and the legislature authorized an additional $23 million in 1999-00 funding. The Air Resources Board (ARB or “the Board”) expects to allocate that funding to districts in January 2000. In October 1999, Governor Davis signed Assembly Bill 1571 (Villaraigosa, Brulte) formally establishing the framework for the program. This report satisfies the requirement in the legislation that the ARB prepare a report to the Legislature on program status by January 2000.

Initial implementation of the Carl Moyer Program has been very successful, with sixteen air quality districts throughout the state participating. Districts received the first year funding six months ago, and the program is in full swing. More than $20 million

(over 80 percent) of first year funding has already been obligated to projects, and the Air Resources Board has agreed to accelerate the second year funding schedule to meet demand.

Air quality districts have been gratified by the strong local response to their calls for project applications. Demand for the project funding has been high – far in excess of available funding. Districts received more than $80 million worth of applications for project funding from both public and private sector applicants. This is more than three times the available first year funding.

The types of projects being funded include: purchase of new natural gas transit and school buses; purchase of new natural gas and dual-fuel trucks; purchase of electric forklifts instead of internal combustion forklifts; and replacement of old diesel engines with newer diesel engines in marine vessels, agricultural pumps, and other off-road equipment.

Estimated emission reductions from the first year funding are about 4 tons per day of NOx reduced. The majority of the emission benefits will occur in the first five years (the minimum project life), although some of the lower-emission engines may be in service 20 years or more. At this level, ongoing funding could result in NOx emission benefits of 15 to 20 tons per day by 2005, depending on the expected life and cost-effectiveness of the projects funded. To put this emission reduction in perspective, 20 tons per day is about 40 percent of the NOx reductions that will result from the ARB regulations, approved last year, lowering emissions from every car, pickup and sport utility vehicle beginning in 2004.

Candidate projects must demonstrate a cost effectiveness not exceeding $12,000 per ton of NOx reduced. Overall, the program is very cost-effective – averaging below $3,000 per ton of NOx reduced based on district estimates for the first year projects. For specific projects, cost-effectiveness ranges from under $1000 per ton up to $12,000 per ton of NOx reduced (the maximum allowed). Generally, projects with higher costs per ton were alternative fuel projects. Those projects also reduced diesel PM -- benefits that weren't accounted for in the cost-effectiveness calculation. As the program continues, it is likely the cost to achieve the required reductions would increase – as the cost for newer technologies increase, and as criteria to achieve PM reductions, in addition to NOx reductions, are included.

The Carl Moyer Program has been implemented quickly. Demand for project funding has been very high, and the resulting emission reductions are extremely cost-effective. But more needs to be done. California cannot meet federal air quality deadlines without continued funding. Reducing public exposure to diesel PM, and off-cycle NOx emissions, make the need even more pressing. Assembly Bill 1571 (Villaraigosa, Brulte) creates a 13 member Carl Moyer Program Advisory Board. The

Advisory Board is being formed now. As the next step in the Carl Moyer Program, the Advisory Board will evaluate the need for continued funding and make recommendations to the administration and the Legislature.

I.

THE GENERAL PROGRAM

The purpose of the Carl Moyer Program is to reduce NOx emissions by providing grants for the incremental cost of cleaner heavy-duty vehicles and equipment. The program is also designed to reduce the fine particulate component of diesel exhaust, which contributes to particulate matter (PM) air pollution and is a toxic air contaminant. The grants are issued locally by air pollution control and air quality management districts that choose to administer a local program. Private companies or public agencies that operate heavy-duty engines in California may apply for grants. This chapter presents a brief discussion on the requirements of the overall Carl Moyer Program as approved by the Board in February 1999.

A. What Is ARB's Role In The Carl Moyer Program?

ARB is responsible for the development and oversight of the majority of the Carl Moyer Program. The California Energy Commission (CEC) is responsible for developing two key portions of the program, the advanced technology and the infrastructure programs. ARB works with the public, local air districts, port authorities, industry, and environmental groups to develop program guidelines. The guidelines describe the types of projects that could be funded, the criteria to evaluate those projects, and how to calculate the emission benefits and cost-effectiveness.

B. Who Implements The Carl Moyer Program?

Local air districts that choose to participate implement the program locally according to ARB guidelines. Implementation includes program outreach, soliciting project applications, awarding grants, and monitoring projects to ensure the emission reductions are actually achieved. Currently, there are 16 districts participating in the program.

C. Who Can Apply For Grants, And How Do They Apply?

Private companies or public agencies that operate heavy-duty engines in California may apply for grants. Companies and agencies apply to the local air pollution control or air quality management districts that are currently participating in the program.

D. How Much Funding Is Available?

In 1998/1999 ARB received $25 million dollars in its budget to fund the program. Two percent of that funding was allocated to ARB for administrative costs. ARB was required to encumber the funds by June 30, 1999, through a subvention to an approved district or port authority program, or by committing them through direct project grants. Districts must spend the 1998/1999 funds by June 15, 2001.

After the Board approved the program guidelines in February 1999, air pollution control and air quality management districts submitted applications to administer the program to the ARB in April 1999. The ARB reviewed and approved the district programs in May of 1999, and awarded the Carl Moyer Program grants to the districts by June 30, 1999.

In the 1999/2000 fiscal year budget, ARB was allocated an additional $19 million dollars to fund projects (two percent for administration). Letters inviting districts to apply for 1999/2000 fiscal year funding went out December 1999.

E. Which Heavy-duty Engine Categories Are Eligible For Funding?

The program funds the incremental cost of cleaner heavy-duty vehicles and equipment from the following categories.

- On-road motor vehicles over 14,000 pounds gross vehicle weight rating
- Off-road equipment over 50 horsepower
- Marine vessels
- Locomotives
- Stationary agricultural pump engines
- Forklifts
- Airport ground support equipment

The program is not intended to fund engine research and development, certification testing, training, or operational controls.

F. Is There An Option To Fund Heavy-duty Engine Projects That Are Not Included In The Guidelines?

Yes. Districts can work with the project proponent to submit heavy-duty engine projects that are not included in the guidelines for ARB's consideration on a case-by-case basis. ARB evaluates the project based on its technological feasibility, the potential for real, quantifiable emission reductions, cost-effectiveness, and the likelihood of other applicants going forward with that type of project. ARB's Executive Officer has the authority to determine whether the project is eligible for funding.

G. Are The Replacement Engines Likely To Be Alternative Fuel Engines?

The types of replacement engines vary by project category. For some categories, the only technology currently available that can achieve significant, cost-effective emission reductions is alternative-fuel technology. For other categories, baseline (pre-project) emission levels are very high, and substantial emission reductions can be achieved with new diesel engines. For example, new on-road heavy-duty vehicle projects are likely to be alternative fuel. In contrast, marine vessel engine replacement (e.g., replacing a tugboat engine) is likely to be with a diesel engine.

H. What Is The Matching Fund Requirement?

Districts and port authorities are required to provide $1 in district/port funding per every $2 in state funding for those projects they approve. Districts can use up to 15 percent in-kind contributions (i.e., administrative costs) as matching funds. Under the 1998/1999 fiscal year funds, districts and ports were allowed to use projects funded in the 1998 fiscal year (beginning July 1, 1998 through February 25, 1999) that would have qualified for the program as part of their matching funds.

I. What Is The Cost-effectiveness Criterion?

Projects must have a cost-effectiveness of $12,000 per ton of NOx reduced, or better. Cost-effectiveness is based solely on Moyer program funds and motor vehicle registration fee funds.

J. Can The Carl Moyer Program Be Used To Fund Infrastructure?

Originally, no, but motor vehicle registration fee (Assembly Bill 2766 and Assembly Bill 434) funds could be used for infrastructure. District infrastructure funding to support a qualifying engine project does count toward the district's match funding

requirement. This fiscal year, the CEC will oversee a $2 million Carl Moyer infrastructure fund that will be used to support qualifying emission reduction projects.

K. How Does Assembly Bill 1571 (Villaraigosa/Brulte) Affect The Current Program?

In general the Carl Moyer Program, under Assembly Bill 1571, remains the same. Most significantly, the new legislation sets up three general project areas under the Carl Moyer Program – the infrastructure demonstration projects, advanced technology projects, and the general projects. The CEC develops guidelines and oversees implementation of the infrastructure demonstration and advanced technology projects. The ARB oversees and implements the general project portion of the Carl Moyer Program.

The legislation also allows for ARB to consider the incremental cost of fuel as it pertains to qualifying Carl Moyer Program projects. However, funding for incremental fuel costs would come from district funds and the district could use those funds to count as district match under the Carl Moyer Program.

Assembly Bill 1571 also creates the Carl Moyer Program Advisory Board which is responsible for seeking continued funding for the program. The Assembly and the Senate appoint two members each on the Advisory Board. The remaining nine members are appointed by the Secretary of Environmental Protection representing the following:

- ARB's Executive Officer, who chairs the Advisory board,
- A member of the CEC
- The heavy-duty trucking industry,
- The agricultural industry,
- The construction industry,
- The locomotive industry,
- The marine industry,
- A public interest environmental organization, and
- The regional transportation agency.

This report on the status of the Carl Moyer Program is also a requirement of Assembly Bill 1571. The bill requires the ARB to prepare a report on the status of the Carl Moyer Program for the Governor, the Legislature, and the Advisory Board. The report must assess the following:

- District efforts to implement the existing program;
- Types of project applications received;
- The need for emission reductions and incentive programs relative to the SIP;
- The potential for emission reduction with continued funding;
- Whether the program should be continued and funded in the future; and
- All available state and local funds that may be utilized in carrying out a continuing program.

II.

BACKGROUND

A. Program History

Heavy-duty engines contribute over 40 percent of NOx emissions, a smog-forming pollutant, despite being less than the five percent of the vehicles. In addition, the fine particulate matter exhaust from heavy-duty diesel engines has been identified as a toxic air contaminant. In 1994, ARB worked with industry, environmentalists, government agencies, and experts in the air quality field to put together a long-term plan for bringing clean air to all Californians. That long-term plan is known as our State Implementation Plan, or SIP. Many of the new emission reduction measures in the SIP are heavy-duty engine measures, including standards for new engines, and incentives to introduce even cleaner engines. Funding was needed for the incentive measures.

There were two bills before the legislature in 1998 that contained criteria for a heavy-duty engine incentive program. They were Senate Bill 1857 (Brulte) and Assembly Bill 1368 (Villaraigosa). Although both bills were vetoed, $25 million was appropriated through the budget process to fund an incentive program. Despite the issues that led to the vetoes, many of the criteria in the bills are consistent with the program envisioned by the Governor and the Legislature. In fact, in October 1999, Assembly Bill 1571 was signed by the Governor to grant ARB and CEC with the authority to implement the Carl Moyer Program as originally intended.

The incentive program is named after the late Dr. Carl Moyer, in recognition of his work in the air quality field, and his efforts in bringing about this incentive program. The ARB approved the Carl Moyer Air Quality Standards Attainment Program (the Carl Moyer Program) in February 1999. This program provides grants for the incremental cost of lower-emission heavy-duty engines. In July 1999, an additional $23 million was appropriated through the 1999/2000 fiscal year budget process to continue funding the Carl Moyer Program through the second year.

B. Current Statewide NOx And PM Emissions

Statewide NOx and particulate matter less than 10 microns (PM_{10}) emissions from selected categories of heavy-duty engines are shown in Table II-1. Total NOx emissions statewide are about 3300 tons per day (1996 inventory). Heavy-duty mobile source engines account for about 40 percent of NOx emissions statewide. Light and medium-duty vehicles account for about 40 percent, and stationary sources for roughly 20 percent of statewide NOx emissions.

Table II-1
Statewide Emissions from Selected Heavy-Duty Engine Categories

Source Category	Current		2010	
	NOx	PM_{10}	NOx	PM_{10}
On-Road Heavy-Duty Vehicle [a]	426	23	465	14
Off-Road Equipment	406[b]	22	317	26
Locomotive	150[c]	3	140	3
Marine	71[c]	10	84	12
Total	1053	58	1006	55

a) Emissions from gasoline and diesel trucks and buses. Emissions based on EMFAC7G model, corrected to account for 2004 standards and off-cycle emissions.
b) 1996 emissions from off-road equipment, including equipment less than 50 horsepower. The off-road equipment emissions inventory is currently being revised.
c) 1996 emissions.

In 1998, the U.S. EPA and the ARB discovered that the majority of heavy-duty diesel-powered engines produced between 1988 and 1998 were programmed to default to a fuel saving operating mode during periods of freeway cruise. This strategy increases emissions of NOx significantly from these engines. Because this operating mode is not present in significant amounts in the certification cycle, these emissions are referred to as “off-cycle”. Enforcement action has been taken by the U.S. EPA and the ARB against the engine manufacturers. However, the high emitting engines are still in use. It is important to recognize that the inventory listed above is based on the current official model (EMFAC7G) with the addition of “off-cycle” emissions from on-road heavy-duty engines.

C. Incentive Program Impacts On the State Implementation Plan (SIP)

The 1994 SIP is California’s plan to attain the federal ambient air quality standard for ozone. The SIP relies heavily on emission reductions from heavy-duty engines. The SIP calls for California to set more stringent emission standards for both on-road and off-road heavy-duty engines. For categories where California is preempted from setting emission standards, the SIP calls for new national or

international emission standards. California is preempted from setting emission standards for new farm and construction equipment less than 175 horsepower (hp), for marine vessels, for new locomotives and new engines used in locomotives, and for aircraft.

Significant progress has been made in setting the emissions standards specified in the SIP. In 1995 and 1996, the ARB, the U.S. EPA, and manufacturers of diesel engines signed agreements to reduce emissions from on- and off-road heavy-duty diesel engines. In 1997, based on the agreement with on-road heavy-duty diesel engine manufacturers, U.S. EPA established a more stringent national standard for heavy-duty truck emissions beginning with the 2004 model year. ARB approved a similar California standard in 1998. U.S. EPA recently adopted more stringent standards for off-road diesel equipment and for locomotives. The International Maritime Organization (IMO) adopted a protocol, which will reduce emissions from new ships beginning January 1, 2000, and U.S. EPA has proposed regulations to limit emissions from domestic vessels. ARB has also signed a Memorandum of Understanding (MOU) with two railroads to further reduce in-use emissions from locomotive engines in the South Coast Non-attainment area, and is negotiating a MOU to reduce emissions from airport ground support equipment in the South Coast.

Although the majority of the measures in the SIP call for more stringent emission standards, the SIP also calls for emission reductions from market-based measures. SIP measure M4, for example, calls for incentives for the early (pre-2004) introduction of lower-emission heavy-duty trucks and buses. The SIP also calls for incentives as part of the strategy to meet the longer-term emission reduction commitments in the SIP. Table II-2 shows SIP commitments for reducing NOx emissions for selected categories of heavy-duty engines.

Table II-2
NOx Emission Reduction Commitments in the SIP
(South Coast Air Basin)

Source Category	1999 NOx (tpd)	2010 NOx (tpd)
On-road heavy-duty vehicles [a]	5	83
Off-road equipment	0	78
Marine vessels	0	9
Locomotives	0	23
Longer-term commitments	0	20
Total	5	213

a) Based on EMFAC 7F model, which was used to develop the 1994 SIP.

The mobile source SIP measures shown in Table II-2 are expected to reduce NOx emissions in the South Coast Air Basin by 5 tons per day in 1999 and 213 tons per day by 2010. The vast majority of reductions from the later years (80 to 90 percent) will be achieved through emission standards for new engines and MOUs, and not through incentives. In order for California to meet its overall SIP commitments, however, emission reductions must occur in the early years. Incentive programs, such as the Carl Moyer Program, will help in achieving about five percent of the total emission reductions needed in the early years. Incentive programs must produce real, quantifiable emission reductions that are beyond what is required by regulations or any legally binding agreements.

D. Need For Incentive Programs

Generally, the industries that generate emissions are responsible for reducing those emissions without the assistance of public funding. As listed in Table II-2, the industries participating in the Carl Moyer Program will bear almost all of the responsibility for reducing their emissions through new engine standards, and through agreements such as the locomotive MOU.

Stringent emission standards will result in significant emission reductions – in time. But these categories are dominated by large diesel engines that last a long time and are usually rebuilt two or three times over their service lifetime. To meet the impending federal attainment deadlines, California must retrofit or repower to reduce emissions from existing engines, and introduce new technology (like alternative fuels) in niche markets.

Retrofits, repowers, and alternative fuel technology can be very cost-effective for a particular project. However, in the near term they may not be technically feasible and cost-effective for a broad enough segment of the market to justify a regulation. As such, incentives are needed to take advantage of cost-effective reductions by paying a vehicle or equipment operator for going beyond what is required.

III.

DISTRICT PROGRAMS

In February 1999, the Carl Moyer Program Guidelines were approved by the ARB. In June 1999, the ARB distributed $24.5 million from the 1998/1999 fiscal year funds under the Carl Moyer Program to 16 air pollution control and air quality management districts. This section of the report briefly explains the program requirements met by each of the districts participating in the Carl Moyer Program. It provides a short discussion on the districts that are currently participating in the Carl Moyer Program, and explains the status of their programs.

A. Program Requirements Met By The Participating Districts

In order to administer the Carl Moyer Program locally, the districts had to meet the following three general program requirements.

- The district had to provide $1 in match funding for every $2 of Carl Moyer Program funding received from the ARB.
- Any projects that a district funded and committed as its match requirement under the Carl Moyer Program had to meet the project criteria for the respective source category listed in the approved Carl Moyer Program Guidelines.
- Lastly, any project that a district funded and used as its match fund requirement under the Carl Moyer Program had to meet a maximum cost-effectiveness criterion of $12,000/ton of NOx emissions reduced.

B. List Of Participating Districts

Sixteen districts applied and received funding from the ARB to implement the Carl Moyer Program. Of these 16 districts, to date nine are considered non-attainment with the federal ozone standard, while the remaining seven are considered to be in attainment. Table III-1 lists the districts that received funding under the Carl Moyer Program in the 1998/1999 fiscal year.

Table III-1
Participating Districts
1998/1999

Non-Attainment Districts	Attainment Districts
Antelope Valley APCD	Glenn County APCD
Bay Area AQMD	Imperial County APCD
Mojave Desert AQMD	Monterey Bay Unified APCD
Sacramento Metropolitan AQMD	North Coast Unified AQMD
San Diego County APCD	Northern Sierra AQMD
San Joaquin Valley Unified APCD	Northern Sonoma County APCD
Santa Barbara County APCD	San Luis Obispo APCD
South Coast AQMD	
Ventura County APCD	

Many districts receive funds from a surcharge on motor vehicle registration fees (a.k.a. Assembly Bill 2766 and Assembly Bill 434 funds). Hence, most districts used the funds from their motor vehicle fees (past and future) as a source for committing match funds under the Carl Moyer Program. In addition, some districts already had active programs to fund grants for lower-emission on-road and off-road motor vehicle projects with the motor vehicle fee money. Where this was the case, the Carl Moyer Program funding significantly augmented their current programs. These districts were able to use funds from July 31, 1998, through February 25, 1999 that were expended on qualifying projects to count as the district's match funding commitment. The only stipulation on the funding commitment was that projects funded during those dates also had to meet the project criteria outlined under the approved Carl Moyer Program Guidelines.

There are some notable differences between district motor vehicle fee (Assembly Bill 2766) programs and the first year Carl Moyer Program: motor vehicle fee funding can be used for refueling infrastructure – the Carl Moyer Program cannot. Motor vehicle fee funds cannot be used for most off-road engines, marine, locomotive, or agricultural pump projects, while the Carl Moyer Program funds can. Hence, by combining motor vehicle fee funding and Carl Moyer Program funding, districts were able to have significant flexibility to fund a variety of worthwhile projects.

C. 1998/1999 Fiscal Year Funding Distributions And Local District Commitments

For the 1998/1999 fiscal year (the first year of the program) $24.5 million was distributed to the participating districts to fund projects, and the remaining $500,000 (two percent) was distributed to ARB to administer the statewide program. A total of

$23.5 million was distributed to the non-attainment districts, while the remaining $1 million was distributed to the smaller, attainment districts. The funds for the non-attainment districts were allocated based on population and the districts' incentive based commitments. For the attainment districts, however, funds were allocated by assigning each district with a minimum of $100,000, for a total of $700,000. The remaining $300,000 was divided between those districts that requested more than $100,000, in proportion to the district population. Table III-2 lists the districts that are currently participating in the Carl Moyer Program, the funds allocated to each district, their match fund requirements and the source of match their match funds.

Table III-2
1998/1999 Fiscal Year Funding Allocation

Non-Attainment Districts	State Allocated Funds	District Funding Commitment
Antelope Valley APCD	$ 302,571	$ 151,286
Bay Area AQMD	$ 2,500,000	$ 1,250,000
Mojave Desert AQMD	$ 845,791	$ 422,896
Sacramento Metropolitan AQMD	$ 1,927,791	$ 963,896
San Diego County APCD	$ 1,085,661	$ 542,831
San Joaquin Valley Unified APCD	$ 4,399,801	$ 1,007,931
Santa Barbara County APCD	$ 302,571	$ 151,286
South Coast AQMD	$11,275,593	$ 5,637,797
Ventura County APCD	$ 860,221	$ 430,111
Attainment Districts		
Glenn County APCD	$ 100,000	$ 50,000
Imperial County APCD	$ 134,800	$ 67,400
Monterey Bay Unified APCD	$ 265,800	$ 132,900
North Coast Unified AQMD	$ 100,000	$ 50,000
Northern Sierra AQMD	$ 127,700	$ 63,850
Northern Sonoma County APCD	$ 113,900	$ 56,950
San Luis Obispo APCD	$ 157,800	$ 78,900
TOTAL	**$24,500,000**	**$12,250,000**

a. The district funding commitment may include up to 15 percent of its match funds as in-kind administration to implement the Carl Moyer Program locally.

As listed above, the participating districts committed approximately $12.25 million in match funding to administer local programs. Total funds for the first year of the Carl Moyer Program will be about $37 million. However, approximately 90 percent of funds committed by the districts were from projects already funded last year or from in-kind administration. Hence, a minimum of $25.7 million in funding will count toward new projects that will produce new NOx reductions.

D. Program Status For Each Participating District

Currently, all of the districts have conducted a public solicitation for projects either through a formal request for proposals (RFP) or some other means of solicitation. Most districts even conducted public workshops to inform the public on how to apply for funding locally. Table III-3 lists the amount of funds allocated and the amount of requests for funding in each district. In most non-attainment districts, the demand for funding ranges from two to five times the amount of funding the district received in the 1998/1999 fiscal year. To date, two districts have requested disbursements for all their Carl Moyer Program funds from the 1998/1999 fiscal year. Some of the remaining districts have selected projects and are currently going to their district boards for approval of projects. ARB anticipates that 97 percent of the 1998/1999 fiscal year funds will be obligated by March 31, 2000. Currently, many of the districts already participating in the Carl Moyer Program are applying to receive funding in early January 2000 from the 1999/2000 fiscal year funds ($19 million) to fund the back log of projects and receive new project applications. The 1999/2000 fiscal year funds will be allocated to each district similar to the 1998/1999 fiscal year funds.

Table III-3
Requested Funding
1998/1999 Fiscal Year

Non-Attainment Districts	State Allocated Funds	Estimated Amount of Funding Requested
South Coast AQMD	$11,275,593	$52,300,000
San Joaquin Valley Unified APCD	$ 4,399,801	$ 7,000,000
Bay Area AQMD	$ 2,500,000	$10,100,000
Sacramento Metropolitan AQMD	$ 1,927,791	$ 3,200,000
San Diego County APCD	$ 1,085,661	$ 4,990,000
Ventura County APCD	$ 860,221	$ 1,500,000
Mojave Desert AQMD	$ 845,791	$ 900,000
Antelope Valley APCD	$ 302,571	$ 500,000
Santa Barbara County APCD	$ 302,571	$ 830,000

Table III-3
Requested Funding
1998/1999 Fiscal Year
(continued)

Non-Attainment Districts	State Allocated Funds	Estimated Amount of Funding Requested
Attainment Districts		
Monterey Bay Unified APCD	$ 265,800	Not Provided
San Luis Obispo APCD	$ 157,800	$ 157,800
Imperial County APCD	$ 134,800	$ 388,000
Northern Sierra AQMD	$ 127,700	None to Date
Northern Sonoma County APCD	$ 113,900	$ 140,000
Glenn County APCD	$ 100,000	$ 150,000
North Coast Unified AQMD	$ 100,000	$ 220,000
STATEWIDE TOTAL	**$24,500,000**	**$82,375,800**

On June 30, 2000, all districts must formally report to ARB on the status of obligating the 1998/1999 fiscal year funds under the Carl Moyer Program. ARB will evaluate each program closely and consider redistributing any funds that are not committed to projects by June 30, 2000. The following sections discuss the district programs and the status of each individual program, based on ARB's preliminary review of district programs.

1. Non-Attainment Districts

South Coast Air Quality Management District (SCAQMD)

The SCAQMD received $11,275,593,46 percent of the funds available for the 1998/1999 fiscal year under the Carl Moyer Program. The SCAQMD committed approximately $5,637,797 from past projects to implement the Carl Moyer Program locally.

The SCAQMD issued a RFP in April 1999 to solicit projects under the Carl Moyer Program. To date, the SCAQMD has received project applications from about 54 applicants for a total of about 851 engines. The amount of funding requested totaled to about $52.3 million. To date, the district has awarded its entire Carl Moyer Program funding to qualifying projects. Two-thirds of the program funding was allocated to on-road vehicles and one-third to off-road vehicles and equipment. Some of the project participants include Waste Management, Burrtec Waste Industries, Specialty Transportation Services, Sunline, Omnitrans, Los Angeles County Metropolitan Transit Authority, Lucky Stores, Marine Terminals, Homebase, Lowe's

HIW, Avery-Dennison, and Harbor Distributors. The types of projects funded by the SCAQMD include 120 alternative fueled transit buses, 104 alternative fueled on-road trucks (including waste-haulers, line-haul trucks, and delivery trucks), 12 yard hostlers, 107 electric forklifts, 9 crawler tractors, and 8 marine vessels. The SCAQMD estimates that their program will result in a total of approximately 6,741 tons of NOx, with a cost effectiveness of about $2,191 per ton of NOx reduced.

On September 10, 1999, the SCAQMD issued a second RFP to distribute its 1999/2000 fiscal year Carl Moyer Program funds. To date, the SCAQMD has applied to ARB for additional funding. The SCAQMD is currently reviewing projects to fund under the 1999/2000 fiscal year funds.

San Joaquin Valley Air Pollution Control District (SJVAPCD)

The SJVAPCD received $4,399,801 in funding to implement the Carl Moyer Program in its district. The SJVAPCD committed approximately $2,199,901 from district funds to implement the Carl Moyer Program.

On June 22**,** 1999, the SJVAPCD issued a RFP to about 2,800 parties announcing the availability of funding and soliciting project applications. The SJVAPCD started receiving applications on July 6, 1999. To date, the SJVAPCD has received 166 qualifying applications to fund 486 engines. The amount of funding requested is over $7 million, well in excess of the funds available to the SJVAPCD to implement the Carl Moyer Program. The district is still receiving applications, and the amount of funding requests to date shows a need for continued funding in the SJVAPCD. On December 9, 1999, the SJVAPCD is scheduled to go to its Board to request approval to apply for continued funding from the ARB for the Carl Moyer Program.

To date, the SJVAPCD has already awarded 72 percent of its funds to projects. The district anticipates that 100 percent of its funds will be obligated by January 2000. Some of the types of projects that the SJVAPCD funded include: agricultural pump engines, school buses, alternatively fueled transit buses, refuse haulers, street sweepers, tractors, line-haul trucks, and delivery trucks. Once the SJVAPCD obligates all of its funds, the district estimates approximately 3763 tons of NOx will be reduced over the entire project life of these projects.

Bay Area Air Quality Management District (BAAQMD)

The BAAQMD received $2.5 million in funding to implement the Carl Moyer Program in its district. The BAAQMD committed approximately $1.25 million from district funds used to pay for past projects.

On August 13,1999, the BAAQMD issued a "Call for Projects." The BAAQMD's program was focused on projects that could achieve a cost-effectiveness of less than $3,000 per ton of NOx reduced. As such, the BAAQMD program focused on projects from locomotives, marine vessels, off-road agricultural equipment and stationary agricultural pumps. The BAAQMD received applications through September 30, 1999. To date, the BAAQMD received 32 applications for funding totaling $10.1 million. This amount exceeds the BAAQMD funding by about 300 percent. Project applications were for 30 marine vessels and one locomotive, a total of about 62 engines.

The BAAQMD is recommending that its Board of Directors approve $4.3 million in projects under the Carl Moyer Program. Of this, $2.5 million will be used from the 1998/1999 fiscal year funds for 13 projects. The district plans on funding the remaining $1.8 million back-log in projects with continued 1999/2000 fiscal year funding from the State.

The projects that the BAAQMD is recommending to be funded include tug boat (marine vessel) engine diesel-to-diesel repowers, a marine vessel retrofit, and a compressed natural gas (CNG) locomotive engine. The BAAQMD estimated that total NOx reductions are approximately 3606 tons over the entire project life.

Sacramento Metropolitan Air Quality Management District (SMAQMD)

The SMAQMD received $1,927,791 in funding to implement the Carl Moyer Program in its district. The SMAQMD committed approximately $963,896 in the district funds to implement the Carl Moyer Program.

The SMAQMD already has an on-going heavy-duty incentive program in place and the Carl Moyer Program was included into their current program. In December 1999 the SMAQMD started notifying the public of the Carl Moyer Program and by June 1999, had pre-qualified 56 applicants under the Carl Moyer Program. To date, the SMAQMD has obligated their entire $1,927,791 to fund agricultural pump engine repower projects. The district funded approximately 56 applicants for a total of approximately 200 engines. The SMAQMD has received 41 additional applications for a total of 113 engines and $1.3 million in pending requests for funding. Since the SMAQMD obligated all of its 1998/1999 fiscal year funds, the district has applied to

ARB to receive additional funding from the 1999/2000 fiscal year funding, to award its backlog in project applications.

The SMAQMD estimates that total NOx reductions from projects funded with 1998/1999 fiscal year funding will amount to approximately 675 tons over the entire project life.

San Diego County Air Pollution Control District (SDCAPCD)

The SDCAPCD received $1,085,661 in funding to implement the Carl Moyer Program in its district. The SDCAPCD committed approximately $542,831 from district funds to implement the Carl Moyer Program.

On May 4, 1999, the SDCAPCD issued a RFP for project applications. The SDCAPCD received approximately 11 applications to fund 137 engines. The amount of funding requested is about $5.0 million, and an excess of about $3.5 million from what the SDCAPCD has in total program funding. On December 10, 1999, the SDCAPCD submitted selected projects to its Board for approval and funding. The SDAPCD anticipates that by March 31, 2000, all of their funds will be obligated to qualifying projects. The types of projects funded by the SDAPCD include alternative fueled urban transit and school buses, waste haulers, and marine vessel repowers. The district will also be applying for continued funding from the 1999/2000 fiscal year funds in order to cover its back log of projects.

Once all 1998/1999 fiscal year funds are obligated, the SDCAPCD estimates that total NOx reductions for the 1998/1999 fiscal year funding to be approximately 90 tons over the entire project life.

Ventura County Air Polllution Control District (VCAPCD)

The VCAPCD received $860,221 in funding to implement the Carl Moyer Program in its district. The VCAPCD committed approximately $430,111 from district funds to implement the Carl Moyer Program locally.

On July 19, 1999, the VCAPCD started accepting project applications for funding under the Carl Moyer Program. The VCAPCD received about 20 applications for about 42 engines. Project applications were for agricultural pump engines, marine vessel engines, and on-road engine repowers. The VCAPCD estimated that the funding requests totaled approximately $1.5 million, which is nearly double the amount of Carl Moyer Program funds that the state allocated to the VCAPCD to implement its program.

To date, the VCAPCD has obligated 78 percent of its Carl Moyer Program Funds. Staff of ARB estimate that to date the VCAPCD's program will result in a total

of approximately 350 tons of NOx reductions. The VCAPCD is currently presenting the selected projects to its Board for funding approval and anticipates all funds will be obligated to projects by March 31, 2000.

Mojave Desert Air Quality Managment District (MDAQMD)

The MDAQMD received $845,791 in funding to implement the Carl Moyer Program in its district. The MDAQMD committed approximately $422,896 from district funds to pay for past projects already funded in the district.

On September 30,1999, the MDAQMD issued a "Call for Projects." The MDAQMD mailed out approximately 197 solicitations to the following industries: fuel distributors/utilities, railroad industry, transit agencies, school districts, alternative fuel vehicle/engine providers/associations, city/county state government fleets, public/private fleets, commercial delivery/distributions/associations, consultants, construction, Chambers of Commerce, waste haulers, manufacturing facilities, and military facilities. The MDAQMD started receiving applications on November 1, 1999 with a final application deadline of May 5, 2000. As of September 30, 1999, the MDAQMD had already committed $220,700 to fund compressed natural gas (CNG) buses, and CNG waste haulers. The MDAQMD received additional applications that qualify for project funding totaling about $679,300. The MDAQM anticipates that all of its funds will be obligated by May 2000.

Antelope Valley Air Pollution Control District (AVAPCD)

The AVAPCD received $302,571 in funding to implement the Carl Moyer Program in its district. The AVAPCD committed approximately $151,286 from district funds to pay for future on-road projects.

On September 3,1999, the AVAPCD issued a "Call for Projects." The AVAPCD mailed out approximately 69 solicitations to the following industries: farm, airport/aerospace, railroad, transit agencies, school districts, engine providers/associations, city/county government fleets, commercial delivery distributors, waste haulers, construction, Chambers of Commerce, and consultants. The AVAPCD started receiving applications on October 4, 1999. To date, the districts received one qualifying application (15 alternative fueled waste hauler engines) for $478,000, which exceeds their 1998/1999 fiscal year allocation. The AVAPCD anticipates that all of their Carl Moyer Program funds will be obligated by March 2000.

Santa Barbara County Air Pollution Control District (SBCAPCD)

The SBCAPCD received $302,571 in funding to implement the Carl Moyer Program in its district. The SBCAPCD committed approximately $151,286 from district

funds to implement the Carl Moyer Program.

The SBCAPCD anticipates that it will use the entire amount of Carl Moyer Program funds to pay for two programs: its marine vessel repower projects and its Clean Air Express Commuter Bus CNG Repower Project. The SBCAPCD currently has a marine vessel repower program to achieve NOx emission reductions from commercial fishing boats. The SBCAPCD has allocated about $182,571 from Carl Moyer Program funds to support marine vessel repowers under its current program. To date, the district has received 32 applications (about $830,000 worth of marine vessel repowers) from commercial fishermen requesting new engines under the program. Currently, grants totaling about $95,508 to four boat operators for engine repowers have been awarded. Additional marine vessel repower applications are currently under review to receive the remaining Carl Moyer Program funds. In addition, the SBCAPCD estimates that approximately $120,000 will be allocated to repower its diesel commuter bus engines to CNG engines.

2. Attainment Districts

Monterey Bay Unified Air Pollution Control District (MBUAPCD)

The MBUAPCD received $265,800 in funding to implement the Carl Moyer Program in its district. The MBUAPCD committed approximately $132,900 in the district funds to implement the Carl Moyer Program.

On July 30,1999 the MBUAPCD issued a RFP for pre-applications. The pre-application deadline to the MBUAPCD was on September 13, 1999. The MBUAPCD anticipates that they will select and approve grants for projects before the end of the year. To date, a total of 19 applicants submitted pre-applications for approximately 85 engines (54 of which are on-road and 31 are off-road).

San Luis Obispo County Air Pollution Control District (SLOCAPCD)

The SLOCAPCD received $157,800 in funding to implement the Carl Moyer Program in its district. The SLOCAPCD committed approximately $78,900 from district funds to implement the Carl Moyer Program locally. To date, the SLOCAPCD has committed the entire amount to replace the entire diesel bus fleet at Hearst Castle with cleaner-burning CNG buses. The district anticipates that this project will reduce NOx emissions by a total of 26 tons.

Imperial County Air Pollution Control District (ICAPCD)

The ICAPCD received $134,000 in funding to implement the Carl Moyer Program in its district. The ICAPCD committed approximately $67,400 from district

funds to pay for future projects.

The ICAPCD solicited applications from a large number of potential applicants. The district's program is focused on off-road equipment, but also accepted applications for on-road projects. The district distributed over 40 applications through the Agricultural Commissioner's Office, the Farm Bureau, and through a direct mailing and distribution effort. The types of industries notified included firms with agricultural and earthmoving equipment, on-road equipment operators, farmers, trucking companies, hay processors, and agricultural irrigation pump operators.

As of December 16, 1999, the ICAPCD obligated $116,150 (86 percent of its entire allocated funds) for 11 off-road engines. The district received funding requests for about $388,000. The ICAPCD anticipates that all of funds will be obligated to projects by January 1, 2000. The district also estimated approximately 770 tons of NOx will be reduced over the entire project life from the 11 engines.

Northern Sierra Air Quality Management District (NSAQMD)

The NSAQMD received $127,700 in funding to implement the Carl Moyer Program in its district. The NSAQMD committed approximately $63,850 from district funds to pay for projects.

On July 20, 1999, a the NSAQMD sent out a news release to the news media in Nevada County, and to the following city and county agencies: City managers, Nevada County Administrator, County Department of Transit Services, County Department of Transportation and Sanitation, City and County Fleet managers, City Public Works Departments, County Superintendent of Schools, County Board of Supervisors, and Nevada Irrigation District. The NSAQMD received no responses following the news release. Hence, the NSAQMD made follow-up calls to fleet managers and enough interest was expressed to warrant a workshop. To date, no projects have been funded.

Northern Sonoma County Air Pollution Control District (NSCAPCD)

The NSCAPCD received $113,900 in funding to implement the Carl Moyer Program in its district. The NSCAPCD committed approximately $56,950 from district funds to pay for future projects.

On September 24, 1999, the NSCAPCD sent out 48 RFPs soliciting participation in the Carl Moyer Program. The industries that received RFPs include the agricultural industries, farms, transportation associations, school districts, and government agencies. The deadline for proposals was on November 5, 1999. To date, the NSCAPCD received one application for eight alternative fueled urban transit buses. The funding request was for $90,000. The NSCAPCD is still receiving applications to

obligate its remaining funds.

Glenn County Air Pollution Control District (GCAPCD)

The GCAPCD received $100,000 in funding to implement the Carl Moyer Program in its district. The GCAPCD committed approximately $50,000 from district funds to pay for future projects.

On November 10, 1999, the GCAPCD conducted a public workshop and issued a RFP under the Carl Moyer Program. As of December 1, 1999, the GCAPCD received 13 qualifying applications for on-road motor vehicles, off-road equipment and stationary agricultural pump engines. The GCAPCD's deadline for applications is December 10, 1999. Funding requests total to about $146,291. The GCAPCD anticipates awarding grants by March 31, 2000.

North Coast Unified Air Quality Management District (NCUAQMD)

The NCUAQMD received $100,000 in funding to implement the Carl Moyer Program in its district. The NCUAQMD committed approximately $50,000 in the district funds to implement the Carl Moyer Program.

On July 2,1999, the NCUAQMD issued an Opportunity Notice. The NCUAQMD started receiving applications on July 19, 1999. As of September 27, 1999, the district was already oversubscribed for the amount of funding that it received from the state under the Carl Moyer Program. The district had received requests for a total of $153,639, however, only $138,679 in projects qualified for funding. Furthermore, the NCUAQMD adopted a policy to set aside 1/3 of available funds for the Fall/Winter 1999 to allow access for seasonal industries (such as logging), that cannot remove equipment from service during their peak work season for rebuilding /repowering. As such, only $90,193 was approved during September 1999 for repower projects. On October 15, 1999, a second Opportunity Notice was sent out for the remaining $52,307 in funding. The district received additional funding requests for about $64,000. The NCUAQMD anticipates most of its funds (except about $6,000) will be obligated to projects by January 1, 2000.

To date, the NCUAQMD funded off-road equipment and on-road diesel-to-diesel repowers. The district estimated approximately 20 tons of NOx will be reduced over the entire project life of the projects. Currently the NCUAQMD is accepting applications from its seasonal industries.

E. Obligated 1998/1999 Fiscal Year Funds

In June 1999, ARB distributed to each participating district an initial grant

disbursement for either a minimum amount of $100,000 or 10 percent of the district's allocation amount. Four districts (SMAQMD, SJVAPCD, SCAQMD, and VCAPCD) have requested more than one grant disbursement from the allocated amounts. Of these four districts, the SMAQMD and the SCAQMD requested their entire allocation from the 1998/1999 fiscal year funds and obligated these funds to qualifying projects. The VCAPCD has requested and obligated 88 percent, the SJVAPCD has requested and obligated 72 percent of their entire allocation amount, the ICAPCD has obligated 86 percent of their entire allocation, and the NCUAQMD has obligated 90 percent. The BAAQMD has recommended projects to its board for the entire $2.5 million allocation to projects. The remaining nine districts have received an initial disbursement of funds and are currently obligating their funds to qualifying projects.

During the first six months of the Carl Moyer Program, participating districts received over $80 million in funding requests under the Carl Moyer Program. To date, about 85 percent of the 1998/1999 fiscal year funds were obligated to projects that meet the approved Carl Moyer Program project criteria. ARB estimates that by March 31, 2000, approximately 97 percent of the 1998/1999 fiscal year funds distributed will be obligated to qualifying projects. Table III-4, lists the amount of 1998/1999 fiscal year funds allocated to each participating district and the amount of funds that will be obligated by
March 31, 2000.

Table III-4
Obligated Funds
1998/1999 Fiscal Year

Non-Attainment Districts	State Allocated Funds	Amount of Funds Obligated by March 31, 2000
South Coast AQMD	$11,275,593	$11,275,593
San Joaquin Valley Unified APCD	$ 4,399,801	$ 4,399,801
Bay Area AQMD	$ 2,500,000	$ 2,500,000
Sacramento Metropolitan AQMD	$ 1,927,791	$ 1,927,791
San Diego County APCD	$ 1,085,661	$ 1,085,661
Ventura County APCD	$ 860,221	$ 860,221
Mojave Desert AQMD	$ 845,791	$ 845,791
Antelope Valley APCD	$ 302,571	$ 302,571
Santa Barbara County APCD	$ 302,571	Not Available
Non-Attainment Districts		
Monterey Bay Unified APCD	$ 265,800	Not Provided
San Luis Obispo APCD	$ 157,800	$ 157,800
Imperial County APCD	$ 134,800	$ 134,800
Northern Sierra AQMD	$ 127,700	None to Date
Northern Sonoma County APCD	$ 113,900	$ 90,000
Glenn County APCD	$ 100,000	$ 100,000
North Coast Unified AQMD	$ 100,000	$ 100,000
TOTAL	**$24,500,000**	**$23,780,029**

F. Main Types Of Projects Funded

To date, districts received applications and funded engines representing almost every source category under the Carl Moyer Program. Engines were funded for heavy-duty line hauls, urban transit buses, school buses, waste haulers, delivery trucks, off-road equipment, agricultural pumps, marine vessels, locomotives, and forklifts. The types of projects ranged from diesel-to-diesel repowers, new diesel engines, to alternative fueled engines and electric motors.

IV.

ESTIMATED BENEFITS OF THE CARL MOYER PROGRAM

Initially, the Carl Moyer Program was designed to substantially reduce NOx, a smog-forming pollutant. Although PM reductions are also expected, they have not been required in order to qualify for funding under the Carl Moyer Program. ARB, however, anticipates that some technologies will significantly contribute to reductions in particulate air pollution. This chapter explains ARB's estimate of air quality and public health benefits from the Carl Moyer Program.

A. Potential NOx Reductions And Cost-Effectiveness

Each participating district is required to provide ARB with a report on its program by June 30, 2000. For that report, each district must estimate NOx reductions and cost-effectiveness. Seven districts (BAAQMD, ICAPCD, NCUAQMD, SMAQMD, SJVUAPCD, SCAQMD, and VCAPCD) already provided ARB with that information. Hence, staff of ARB estimated potential NOx reductions based on preliminary data for these districts' programs.

Since a variety of projects were funded, the project life for each project varied from five to 20 years. According to the data provided by each district on their program, average NOx reductions ranged from 2 and 561 tons per year. Total NOx reductions from the five districts are estimated at 1226 tons per year (about 4 tons per day). Based on the project life for each project funded, ARB expects maximum NOx reductions to occur within the first five years of the program, since five years is the minimum project life under the Carl Moyer Program. After the first five years, ARB anticipates NOx reductions to decrease as the end of the each project life approaches. Table IV-1 lists the amount of funds each of the seven districts obligated, resulting annual NOx emission reductions, and cost-effectiveness.

Table IV-1
Potential Program NOx Reductions and Cost-Effectiveness
1998/1999 Fiscal Year

District	1998/1999 Carl Moyer Program Funds Obligated to Date	Estimated Annual NOx Reductions (tons/year)	Estimated Average Cost-Effectiveness ($/ton)
SCAQMD	$11,275,593	561	$2,191
SJVAPCD	$ 4,399,801[a]	313[b]	$2,683
BAAQMD	$ 2,500,000[c]	172	$1,111
SMAQMD	$ 1,927,791	135	$3,095
VCAPCD	$ 66,676	35	$2,493
ICAPCD	$ 116,150	8	$1,961
NCUAQMD	$ 90,193	2	$4,561
Total	$20,376,204	1226	

Notes: a. SJVAPCD anticipates its entire $4.3 million will be obligated in January 20000.
b. NOx reductions have been estimated based on funds obligated as of December 15, 1999.
c. Funds are based on projects selected by BAAQMD staff and currently being reviewed by the BAAQMD Mobile Source Committee.

On a program basis, the cost-effectiveness ranged from $1,111 to $4,561 per ton of NOx reduced, well below the $12,000 per ton threshold. In addition, those values do not consider the particulate reductions discussed below. On a project basis, cost effectiveness ranged from under $1000 per ton to $12,000 per ton. Since the districts listed above funded a variety of projects, ARB expects the overall program cost-effectiveness for the Carl Moyer Program statewide to be below $3,000 per ton of NOx emissions reduced in the first few years.

B. Diesel Particulate Reduction Requirements

The Carl Moyer Program was designed to assist California in meeting the NOx emission reductions in measure M4 in the 1994 SIP. Although the focus of the program is not on PM, some of the technologies, such as electric motors and alternative fueled engines, funded under this program will also reduce PM. Based on recent findings on diesel PM, however, it has become more critical to include PM reductions into the Carl Moyer Program. Currently, plans are being adopted to meet air quality goals for inhalable particulate. In addition, ARB anticipates that the future Carl Moyer Program will include criteria for evaluating PM reductions from the various project categories.

C. Diesel Particulate Reductions

Since some of the technologies, such as electric motors and alternative fueled engines, funded under the Carl Moyer Program reduce PM emissions, the Carl Moyer Program is also expected to reduce diesel particulate. In SCAQMD alone, over 180 alternative fueled engines were funded with the Carl Moyer Program funds. Based on the data provided by the SCAQMD, ARB estimates PM reductions from the Carl Moyer Program in the South Coast to be about one ton per year from alternative fuel conversions.

V.

NEED FOR CONTINUED FUNDING

A. Need for Statewide Emission Reductions

Continued funding is needed for air districts statewide to reduce emissions and meet federal air quality deadlines, to meet and maintain healthful air quality levels, and to reduce public exposure to toxic air contaminants. The Carl Moyer Program can cost-effectively reduce emissions from existing diesel engines, and can encourage the introduction of alternative fuel technology. The two years of funding that have been allocated to the program will achieve about 7 tons per day of NOx emission benefits statewide by 2005. If the Carl Moyer Program continues to be funded at $25 million per year with similar projects, NOx emission benefits would be about 15 to 20 tons per day by 2005. This is about 12 percent of the new emission reductions required in the SIP from heavy-duty diesel engine categories.

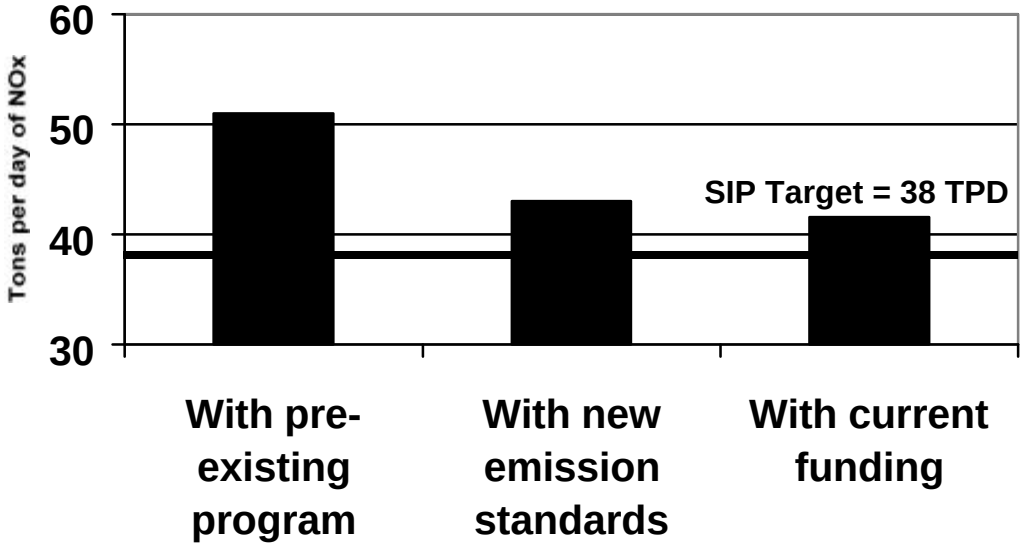
B. SIP Reductions Required by 2005

Some non-attainment districts have early attainment years under the 1994 Ozone SIP. Incentive programs, such as the Carl Moyer Program, will assist these districts in achieving needed NOx reductions. The Sacramento region is a good illustration of the need for incentive programs to meet near–term air quality deadlines. Federal law requires the Sacramento Region to attain the federal one-hour ozone standard by 2005. Meeting the federal standard requires that the Sacramento Region to reduce NOx emissions from on- and off-road heavy-duty diesel engines to 38 tons per day (See Figure V-1 below). The 1994 SIP identifies the strategies necessary to meet the attainment target.

In the Sacramento Region in 2005, on- and off-road diesel engines are projected to contribute more than 40 percent of ozone-forming NOx emissions, even with pre-existing emission standards in place. The SIP provides for more stringent emission standards for on- and off-road diesel engines effective after 2000. These standards affect only new engines, so the emission benefits are not fully realized until the fleet is replaced, well after 2005. To reduce emissions to the 38 ton per day SIP attainment

target level, the Sacramento Region needs additional strategies to accelerate the introduction of cleaner on-and off-road diesel engines. The SIP contains joint state and local commitments to reduce NOx emissions by five tons per day through clean fleet incentive programs. Continued funding for the Carl Moyer program at current levels – $19 million through 2005 – would provide less than 30 percent of the needed reductions. Increased funding is essential to deliver the emission reductions (five tons per day) needed for attainment in 2005.

Figure V-1
Heavy-Duty Diesel On- and Off-Road Emissions
Sacramento Region
(2005)



C. Sources of Funding Available To Continuing Funding Program

There are several sources of funding that could be available to continue funding the Carl Moyer Program. These sources include the following:

- The State's General Fund
- Off-Cycle Diesel Settlement Monies
- The local districts' Motor Vehicle Registration Surcharge Accounts
- The Federal Congestion Mitigation Air Quality (CMAQ) Fund
- Petroleum Violation Escrow Account (PVEA),
- High Polluter Repair or Removal Account

1. The State's General Fund/Motor Vehicle Account

ARB received about $9 million ($4 million for CEC, and $5 million for ARB) in 1999/2000 from the State's General Fund for the Carl Moyer Program. The remainder of the 23 million in FY 1999/2000 Carl Moyer funds came from one-time diesel settlement monies. Future funding for the Carl Moyer Program could come from the general fund, or from generalized funds, such as the Motor Vehicle Account. The Motor Vehicle Account, funded by vehicle registration fees, funds ARB's motor vehicle program, as well as the California Highway Patrol and the Department of Motor Vehicles.

2. Off-cycle Diesel Settlement Monies

Diesel engine manufacturers violated state and federal law by using alternative emission control strategies, which significantly increased NOx emissions in-use, compared to levels measured on the certification test cycle. As a result of settlement agreements with the engine manufacturers, California has received $14 million in settlement funding, and will receive an additional $5 million. The $14 million was used as part of the 1999-2000 fiscal year funding for the Carl Moyer Program. The additional $5 million could be used as part of 2000-2001fiscal year Carl Moyer Program funding.

3. The Local Motor Vehicle Registration Surcharge Accounts

Local motor vehicle registration surcharge accounts come from a surcharge set on motor vehicle registration for each county. The fee varies between $1 and $4 per vehicle in each county. If these funds were used for the Carl Moyer Program, projects

funded would need to be motor vehicle projects, eliminating alternative projects to clean up locomotives and ships, for example. In addition, districts are currently using local motor vehicle registration fees as match funds for the Carl Moyer Program.

4. The Federal CMAQ Fund

California receives about $150 million per year in CMAQ funds, which are available through local transportation commissions. Projects must be related to congestion mitigation and air quality. Currently, these funds are fully subscribed. Therefore, use of these funds for the Carl Moyer Program would eliminate other transportation projects intended to improve air quality.

5. The PVEA Funding

PVEA funding comes from settlements against U.S. oil companies during price regulations (1973-81). If funds are used from this account, projects must increase energy efficiency or reduce reliance on petroleum-based fuels. Continued PVEA funding is uncertain, and historic funding amounts are declining. Many other energy-related programs compete for PVEA funds. For all these reasons, the viability of PVEA funds as a longer-term source of funding is questionable.

6. High Polluter Repair or Removal Account

Funds from the High Polluter Repair or Removal Account are currently used to assist low-income families whose cars fail smog check to get their vehicles repaired, or for voluntary vehicle scrappage as part of the smog check program. Funding for the High Polluter Repair or Removal Account was generated from a $300 fee on California vehicle owners bringing in out-of-state vehicles. That fee has been invalidated as the result of a court decision, and therefore the High Polluter Repair or Removal Account is not a viable source of long-term funding for the Carl Moyer Program.